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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,148	08/01/2006	Yoshihisa Suda	1009682-000160	5044

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BUCHANAN, INGERSOLL & ROONEY PC
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EXAMINER

YANCHUK, STEPHEN J

ART UNIT

PAPER NUMBER

1729

NOTIFICATION DATE

DELIVERY MODE

07/21/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com
offserv@bipc.com

Office Action Summary

Application No.

10/588,148

Applicant(s)

SUDA ET AL.

Examiner

STEPHEN YANCHUK

Art Unit

1729

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 75-86 and 116-171 is/are pending in the application.
- 4a) Of the above claim(s) 75-86 and 116-145 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 145-171 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in prior office action.
2. The 112 rejection has been overcome by amendment

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/16/2011 has been entered.

Claim Rejections - 35 USC § 103

1. Claims 145-171 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al. (PGPUB 2004/0072049), and further in view of Yonetsu et al (USPAT 6506513) and Yamada (USPAT 5364711).

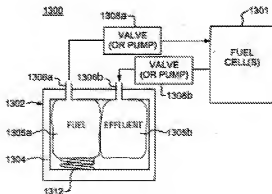


FIG. 13

Claim 145, 151, 157, 165: Becerra teaches a detachable fuel container system that comprises a fuel storage bladder and an effluent (unused fuel, water, other byproducts of the fuel cell system) bladder in one container [Abstract, Figure 13]. The fuel container is connected to a plurality of fuel cells [Figure 13]. The used fuel storing tank (1305b) is hermetically closed except the part connected to valve/pump (1308b) which contains the discharge from the fuel cell [Figure 13]. The valves would be open in order to allow the flow of fuel and byproduct. Becerra fails to teach a feed mechanism comprising capillary materials.

The storage tank of Becerra when initialized is obviously not in contact in a manner of some embodiments of the instant application due to no effluent material existing in the effluent bladder. In the assembly of the structure where the fuel cell has not be used, the full fuel bladder would not be in contact with the effluent bladder as would be obvious to one of ordinary skill in the art. The current applicant include functional, non-structural limitation pertaining to the usage of the cell where the bladders are never in contact with each other. In the case where the cell is never operated, the bladders will never be in contact with each other. The applicant can not receive method limitation weight in structure claims. The prior art of record is capable of operating in substantially the same way as claimed.

MPEP 2144.04 IV C. Rearrangement of parts obviates the separation of effluent and fuel. Although Becerra teaches thermal motivation for combining parts, one of ordinary skill in the art would have found it obvious to rearrange the separate entities that are detachable.

FIG. 22

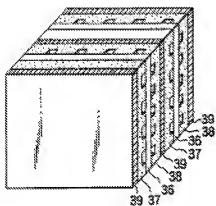
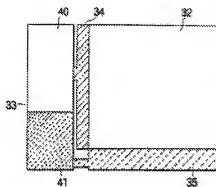


FIG. 23



Yonetsu teaches a detachable fuel tank that uses capillary action to draw fuel from the tank to the unit cell. A fuel tank is attached to this fuel cell and utilizes capillary action to introduce fuel into the unit cell [Abstract; Col 4 Ln 26-65]. Figure 14 shows a plurality of unit cells (2) in the system. Porous materials or fine tubes (fibers) are taught to be used in order to achieve this force [Col 4 Ln 5-65]. Yonetsu teaches a feed element that is penetrating into the fuel tank and deposits the fuel at the electrode. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Becerra with a capillary removable mechanism as taught by Yonetsu in order to have a system that has a highly stable feed of liquid fuel to the fuel cell in small devices based regardless of orientation due to the use of capillary forces [Col 2 Ln 33-40].

Yamada teaches a cartridge (33) is depicted in Figure 23 to include a fuel storage area (40) and water-storage (used fuel) area (41) wherein the fuel transfers from the cartridge to the cell via a fuel diffusion chamber (34) and from the cell to the

water-storage area via a water-recovery chamber (35). The capillary materials are taught to be porous materials or fibers [Col 18 Ln34-51] wherein the fibers create a porous material and therefore read on a porous material and fiber material. The fuel diffusion chamber and water-recovery chamber use organic or inorganic fiber wicks to move the fuel/water by capillary motion through the cell [Col 37 Ln 50-Col 38 Ln 54]. Yamada teaches a space between the used fuel storing tank and the liquid fuel storing tank (electrode plate regions) comprising the capillary force material [Fig 22-23]. Yamada also teaches the collector body [Figure 23] wherein it has the same function as claimed. Yamada is relied upon because Yonetsu teaches expelling used fuel from the fuel cell. Yamada enables the mechanism of capillary force for drawing fuel from a tank and sending it back to a waste tank, thus enabling one of ordinary skill in the art to modify Becerra to incorporate capillary force. It would have been obvious for one of ordinary skill in the art to modify Becerra with Yamada because Yamada teaches making a fuel cell smaller by utilizing this natural driving force instead of mechanical [Col 3 Ln 5-Col 4 Ln 14].

Claim 146-147, 153, 158-159, 162, 167, 169: Yamada teaches a water-retaining wick (41) having a smaller average pore diameter than the water-recovery wick (35) [Col 38 Ln 25-28]. It is taught that the smaller the average pore diameter, the increase in capillary force [Col 39 Ln 1-15]. It is also taught to have the force increase from fuel reservoir area (40) to water-recovery area (41) [Col 39 Ln 29-38]. The feed comprises the same elements of a fuel supplying member and therefore the rejection can be made for the listed claims.

Claim 148, 154, 160, 168: Becerra teaches a detachable tank unit [Abstract Figure 13].

Claim 149: Becerra teaches a valve or pump system attached to the used liquid fuel storing tank that can be open or closed [Figure 13]. The limitation of the used fuel occlusion body is not a positively recited structure claim limitation. The system of Becerra is able to perform the limitation of the used fuel occlusion body in light of Yamada.

Claim 150, 156, 164, 171: Becerra teaches a fuel of methanol [Paragraph 37].

Claim 152, 166: The applicant has claimed the product by how the product was made. Thus, claims are product-by-process claims. For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a collector body. The reference suggests such a product.

Claim 155, 163, 170: Becerra teaches a valve [Figure 13] wherein it can be open or closed.

Claim 161: The fuel occlusion body being an element capillary force is taught to be a fin shape by Yamada [Figure 23].

Claim 161: The fuel occlusion body being an element capillary force is taught to be a fin shape by Yonetsu [Figure 13].

Claim 161: Change of shape and size is not patentably distinct when it would have been within the ability of one of ordinary skill in the art MPEP 2144.04.

Response to Arguments

2. The examiner has interpreted the applicant's amendment of "a space" to be the region of fuel travel along the electrode plates. The prior art teaches capillary force materials structurally present in this region and therefore the amendment is not sufficient in overcoming the prior art of record.
3. The applicant's arguments are narrower than the claim warrants. The arguments regarding the "a space" are made to the physical location between a used tank and a supply tank. The space existing along the flow direction of the direction is interpreted to read on the claims as currently presented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YANCHUK whose telephone number is (571)270-7343. The examiner can normally be reached on Monday through Thursday 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on 571-277-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN YANCHUK/
Examiner, Art Unit 1729

/Robert Hodge/
Primary Examiner, Art Unit 1729